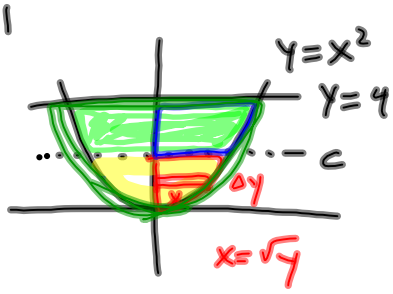
41



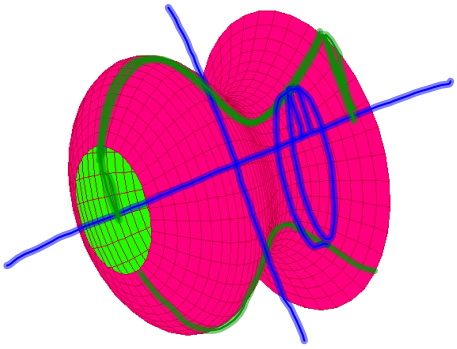
b) $\int_0^c \sqrt{y}\,dy = \int_c^4 \sqrt{y}\,dy$

c) $\int_{-\sqrt{c}}^{\sqrt{c}} c - x^2\,dx = \frac{1}{2}\int_{-2}^{2} 4 - x^2\,dx$

Dec 19-10:19 AM

7.3a Volumes

How could we find/approximate the volume of the solid?



$\lim_{\Delta x \to 0} \sum$ slices $= V$

$V = \int_a^b$ Area of slices dx

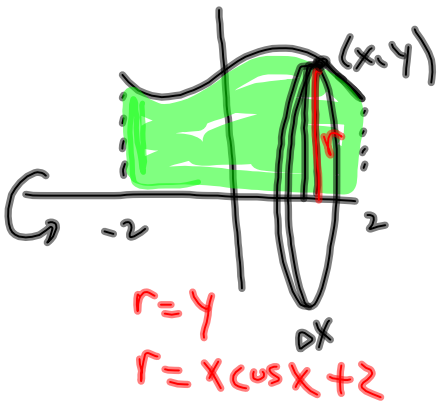
Dec 15-5:19 PM

Volumes of known cross section

$$V = \int_a^b A(x)\,dx$$

Dec 15-6:07 PM

The region between the graph of f(x)=xcos(x)+2 and the x-axis over the interval [-2,2] is revolved about the x-axis to generate a solid. Find the volume of the solid.



$$\Delta V = \pi r^2 \Delta x$$

$$\Delta V = \pi (x\cos x + 2)^2 \Delta x$$

$$V \approx \sum \pi (x\cos x + 2)^2 \Delta x$$

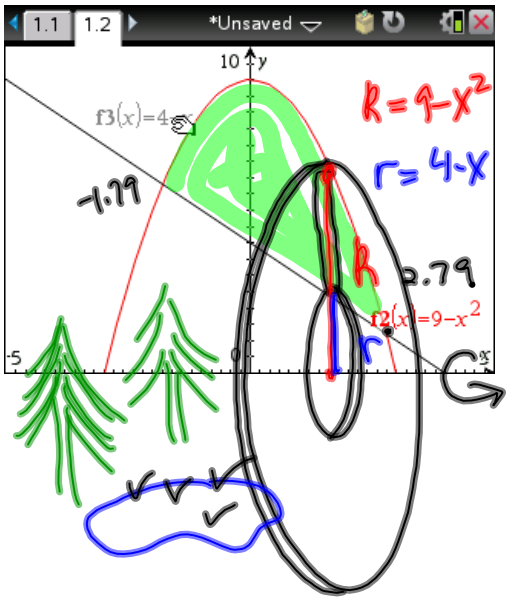
$$V = \int_{-2}^{2} \pi (x\cos x + 2)^2 \, dx$$

$$V = 52.42$$

http://www.calculusapplets.com/revolution.html

Dec 15-6:11 PM

Find the volume of the object generated by revolving y = 9-x^2 and y = 4-x about the x-axis.



$\Delta V = \pi R^2 \Delta x - \pi r^2 \Delta x$

$\Delta V = (\pi R^2 - \pi r^2)\Delta x$

$V = \int_a^b \pi R^2 - \pi r^2 \, dx$

Washers

$\int_{-1.79}^{2.79} \pi (9-x^2)^2 - \pi (4-x)^2 \, dx$

http://www.calculusapplets.com/revolution.html

Dec 15-6:12 PM

The region in the first quadrant enclosed by the y-axis and the graphs of y=cos(x) and y=sin(x) is revolved about the x-axis to form a solid. (a) Find its volume. (b) Find the volume if the region is revolved about the y-axis.

Dec 15-6:53 PM